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EXAMINER

MAI, KEVIN S

ART UNIT	PAPER NUMBER
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2456

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/708,260	Applicant(s) ABRAMSON ET AL.	
	Examiner KEVIN S. MAI	Art Unit 2456	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,9-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action has been issued in response to Applicant's Amendment filed July 9, 2010.
2. Claims 1, 3, 12 and 19 have been amended. Claims 8 and 13 have been canceled. Claims 1-6, 9-12 and 14-19 are pending in the application.

Response to Arguments

3. Applicant's arguments filed July 9, 2010 have been fully considered but they are not persuasive.
4. Applicant's argue that Singal does not teach or suggest a download manager executing on a client computer for retrieving, and storing in a mass storage device a portion of a content file, the download manager determining a size of the portion to retrieve in a response to the determination made by the bandwidth measurement module. Examiner disagrees.
5. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is

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unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another.

6. Applicant's further argue that it is not obvious to determine a size of a portion of a content file to retrieve in response to a determination made by a bandwidth measurement module and respectfully requests that, if the Examiner persists in this rejection, the examiner provide documentary evident for this claim element. For example, how could the same "logic" be used to determine the size of a portion of a file to retrieve if the file is unavailable. Examiner disagrees.

7. For the same rationale provided above as well as in the rejection, such a limitation would be obvious in view of Singal. However examiner will address applicant's specific concern of "how could the same 'logic' be used to determine the size of a portion of a file to retrieve if the file is unavailable". It appears that applicant is misunderstanding what is meant by unavailable, looking at figure 5 of Singal it is clear that there are three possible routes based on the status of the object, if the object is fully available, partially available or unavailable. These three states describe having the entire portion of a file already at the edge server, part of the file at the edge

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server or none of the file at the edge server. It is noted that in the situation where the file is not currently at the edge server (unavailable) a process is described to download a correctly sized prefix in order for streaming to occur uninterrupted. Column 5 lines 55-65 disclose prefix's can be distributed to a the prefix cache a priori, thus avoiding initial latencies involved in copying media object from an origin server to an edge server. Prefix size can be determined manually or automatically based on network capacity and/or other conditions. However, it is not explicitly described how this prefix size would be calculated in the situation where the prefix is cached a priori. As such in view of the statement in Singal that states that this prefix size can be determined automatically based on network capacity and/or other conditions such as the type of connection, it would be obvious to measure the cached a priori prefix size using the technique disclosed in the situation described above where it was found that the file was unavailable at the edge server. Namely since the a priori prefix is able to be calculated automatically based on network capacity, it would be obvious to use the technique described in the situation where the status of the object is unavailable (as shown in figure 5) to calculate the prefix size based on the bandwidth.

8. Applicant's question appears to be implying if the file unavailable how could a size be measured since the file is not there to be measured? However that is an incorrect interpretation of what is meant by unavailable and how it would affect size measurement, while the file may be unavailable at the edge server, it would be available at the origin server for download and accordingly still available for measurement. This is much the same as applicant's invention in that their file would unavailable to the client, as in not immediately available for play and hence

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needs to be downloaded. As such, the rationale above is seen to appropriately address applicant's request to explain the "logic" used.

9. Applicant argues Singal's client is not the component that determines the size of the content. However, examiner argues that such an implementation is obvious. It is seen that the connection between the client and the server can reasonably be measured from either side and accordingly making a determination based on the bandwidth from either side would be obvious. Using either method would simply be a design choice as to whether the designer wanted to put more load on the server for making these calculations or more load on the client's to distribute the calculations.

10. Applicant's remaining arguments are the same as those recited above. Accordingly examiner argues the same responses used above.

Claim Rejections - 35 USC § 112

11. In view of the claims being cancelled the pending claim rejections under 35 USC § 112 have been withdrawn.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1-6, 9-12 and 16-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Us Pub. No. 2004/0148634 to Arsenault et al. (hereinafter "Arsenault") and further in view of US Pat. No. 6859840 to Singal et al. (hereinafter "Singal") and further in view of US Pub. No. 2003/0016630 to Vega-Garcia et al. (hereinafter "Vega-Garcia").

16. **As to Claim 1**, Arsenault discloses **a client computer comprising:**
a mass storage device (Paragraph [0047] of Arsenault discloses a local storage unit such as the video storage device 232 for storing video);
a processor (Paragraph [0045] of Arsenault discloses a microcontroller);

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[a bandwidth measurement module executed by said processor for dynamically determining, during transfer of a content file over a network, a bandwidth of a network connection over which the content file is being retrieved];

a download manager executed by said processor for retrieving, and storing in the mass storage device, a portion of the content file, [the download manager determining a size of the portion to retrieve in response to the determination made by the bandwidth measurement module] (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval); **and**

a presentation manager executed by said processor for retrieving the portion of the content file from the mass storage device and displaying the portion with a media player application (Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber),

wherein the download manager retrieves a remainder of the content file in response to the presentation manager displaying the retrieved portion of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **a bandwidth measurement module executed by said processor for ... determining, during transfer of a content file over a network, a bandwidth of a network connection over which the content file is being retrieved and the download**

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manager determining a size of the portion to retrieve in response to the determination made by the bandwidth measurement module

However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the media distribution system as disclosed by Arsenault, with bandwidth measurements

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to determine a prefix as disclosed by Singal. One of ordinary skill in the art would have been motivated to combine to apply a known technique to a known device. Paragraph [0074] of Arsenault discloses the time length of the pre-stored video program material segment is equal to the rebroadcast interval. This allows all of the subsequent time segments of the video program to be recorded while the pre-stored video program segment is played back for viewing.

Accordingly it is seen that Arsenault suggests having somehow determined a pre-stored segment size such that the latter segments can be recorded. Thus it would have been obvious to implement Singal's system for determining such a size.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

It would have been obvious to one of ordinary skill in the art at the time of invention to combine media distribution system as disclosed by Arsenault-Singal, with having the bandwidth measurement be done persistently as disclosed by Vega-Garcia. One of ordinary skill in the art would have been motivated to combine improve the accuracy of the measurement. Using the persistent bandwidth measurement process in place of Singal's measurement process is seen to be simple substitution of one known element for another to obtain predictable results. Both measurement processes were well known in the art at the time of invention and as such would be obvious to use them interchangeably for their known benefits.

17. **As to Claim 2**, Arsenault-Singal-Vega-Garcia discloses **the client computer of claim 1 wherein the bandwidth measuring module makes a second determination of the bandwidth of the network connection over which the content file is being retrieved, and the download manager responsive to the second determination establishes a second size for the portion of the content file to retrieve** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose a scenario in which not enough of a prefix has been cached at the edge server. This initial prefix is the prefix that would have been calculated in claim 1. When a video is requested the bandwidth needed to playback the video smoothly is calculated based on the current prefix size and the size of the whole file (step 170). It then measures the bandwidth to see if enough is available (step 172). If not enough bandwidth is available it goes onto steps 158 and 160 which involve measuring the bandwidth and computing a new prefix size. This is seen to be the same as a second bandwidth determination establishing a second size of the content file).

Examiner recites the same rationale to combined used in claim 1.

18. **As to Claim 3**, Arsenault-Singal-Vega-Garcia discloses **the client computer of claim 1 wherein the bandwidth measurement module uses a timer data value, a total size of the portion, and a current progress of the retrieval of the portion to determine when the download manager has downloaded a sufficient portion of the content file such that the download manager would be able to download the remainder of the data file before the player application finishes playing the portion of the content file from the mass storage**

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device (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose computing the prefix size in such a fashion such that starvation is avoided (step 160). The formula used is $p' = T(1 - R/B)$ where p' is the prefix size calculated to be downloaded, T is the total size of the file, B is the file bit rate, and R is the transfer rate of the file. Then in steps 162 and 164 data (d) is loaded until d is $\geq p'$. Thus the two rates, R and B , are seen to be equivalent to the timer data value, the total size is considered in T , and the current progress is seen to be the same as d).

Examiner recites the same rationale to combined used in claim 1.

19. **As to Claim 4**, Arsenault-Singal-Vega-Garcia discloses **the client computer of claim 1 wherein the bandwidth measurement module comprises a timer** (Paragraph [0027] of Vega-Garcia discloses utilizing time between packets to determine bandwidth. This is seen to be using a timer).

Examiner recites the same rationale to combine used in claim 1.

20. **As to Claim 5**, Arsenault-Singal-Vega-Garcia discloses **the client computer of claim 1 wherein the bandwidth measurement module and the download manager comprise a single process** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose measuring the bandwidth in order to load the correct amount of data. This is seen to be having the bandwidth measurement and downloading happening within a single process).

Examiner recites the same rationale to combined used in claim 1.

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21. **As to Claim 6**, Arsenault-Singal-Vega-Garcia discloses **the client computer of claim 1**. Arsenault-Singal-Vega-Garcia does not explicitly disclose **wherein the download manager comprises a thread process**.

However it would have been obvious to have Arsenault-Singal-Vega-Garcia perform this limitation. Making a program a thread process is a well-known and thoroughly documented idea. Threaded processes have the advantage that they can perform several tasks concurrently without the extra overhead needed to create a new process. Since making a program into a threaded process would tend to make it faster to execute it would be obvious to one of ordinary skill in the art at the time of invention to improve the download manager by making it a threaded process.

22. **As to Claim 9**, Arsenault-Singal-Vega-Garcia discloses **the client computer of claim 1 wherein the presentation manager comprises a Windows Media Player application** (Column 6 lines 20 – 25 of Singal discloses using Windows Media Server to provide the streaming media. This would imply the usage of the Window Media Player on the client side).

Examiner recites the same rationale to combined used in claim 1.

23. **As to Claim 10**, Arsenault discloses **a method for efficiently downloading a page of broadband content including at least one content file, the method comprising the steps of: (a) retrieving by a download manager executed by a processor of a client computer, a content file** (Paragraph [0074] of Arsenault discloses a video program being selected and a first

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segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

[(b) dynamically determining, by a bandwidth measurement module executed by said processor and during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved];

(c) determining, by the download manager, a size of a portion of the content file to retrieve [in response to the bandwidth determination by the bandwidth measurement module]

(Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

(d) terminating, by the download manager, retrieval of the content file upon receiving the determined size of the portion of the content file (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

(e) displaying, with a media player application executing on the client computer, the retrieved portion of the content file (Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber); **and**

(f) retrieving, by the client computer in response to step (e), a remainder of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

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Arsenault does not explicitly disclose **dynamically determining, by a bandwidth measurement module executed by said processor and during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved and determining in response to the bandwidth determination by the bandwidth measurement module**

However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be

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substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another.

Examiner recites the same rationale to combine used in claim 1.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

Examiner recites the same rationale to combined used in claim 1.

24. **As to Claim 11**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 further comprising making by the bandwidth measurement module, a second determination of the bandwidth of a network connection over which the content file is retrieved during the transfer of the content file over the network and determining, by the download manager in response to the bandwidth measurement module, a second size of the portion of the content file to retrieve** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose a scenario in which not enough of a prefix has been cached at the edge server. This initial prefix is the prefix that would have been calculated in claim 1. When a video is requested the bandwidth needed to playback the video smoothly is calculated based on the current prefix size and the size of the whole file (step 170). It then measures the bandwidth to see if enough is available (step 172). If not enough bandwidth is available it goes onto steps 158

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and 160 which involve measuring the bandwidth and computing a new prefix size. This is seen to be the same as a second bandwidth determination establishing a second size of the content file).

Examiner recites the same rationale to combined used in claim 1.

25. **As to Claim 12**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 further comprising using, by the bandwidth measurement module, a timer data value, a total size of the retrieval, and a current progress of the portion retrieved to determine when the download manager has downloaded a sufficient portion of the content file such that the download manager is able to download the remainder of the data file before the player application finishes playing the portion of the content file from the mass storage device** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose computing the prefix size in such a fashion such that starvation is avoided (step 160). The formula used is $p' = T(1 - R/B)$ where p' is the prefix size calculated to be downloaded, T is the total size of the file, B is the file bit rate, and R is the transfer rate of the file. Then in steps 162 and 164 data (d) is loaded until d is $\geq p'$. Thus the two rates, R and B , are seen to be equivalent to the timer data value, the total size is considered in T , and the current progress is seen to be the same as d).

Examiner recites the same rationale to combined used in claim 1.

26. **As to Claim 16**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 further comprising the step of displaying with a media player application the remainder of**

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the content file (Column 6 lines 45 – 50 of Singal disclose using QuickTime to play the video stream).

Examiner recites the same rationale to combined used in claim 1.

27. **As to Claim 17**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 wherein step (e) and step (f) occur substantially concurrently** (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

28. **As to Claim 18**, Arsenault discloses **a computer readable program means operating on an article of manufacture and containing instructions executable by a client computer for performing a method for efficiently downloading a page of broadband content including a first content file and a second content file, the method comprising: retrieving a content file** (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval); **[dynamically determining, by a bandwidth measurement module during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved];** **determining a size of a portion of the content file to retrieve [in response to the bandwidth measurement determination]** (Paragraph [0074] of Arsenault discloses a video program being

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selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

terminating, by a download manager, retrieval of the content file upon receiving of the determined size of the portion of the content file (Paragraph [0074] of Arsenault discloses a

video program being selected and a first segment of the video program is received and stored.

Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

displaying with a media player application the retrieved portion of the content file

(Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber); **and**

retrieving, in response to displaying with a media player application the retrieved portion of the content file, the remainder of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **dynamically determining, by a bandwidth**

measurement module during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved and determining in response to the bandwidth measurement determination

However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of

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the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another.

Examiner recites the same rationale to combine used in claim 1.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

Examiner recites the same rationale to combined used in claim 1.

29. **As to Claim 19**, Arsenault discloses **a client computer comprising:**

a mass storage device (Paragraph [0047] of Arsenault discloses a local storage unit such as the video storage device 232 for storing video);

a processor (Paragraph [0045] of Arsenault discloses a microcontroller);

[a bandwidth measurement module executed by said processor for dynamically determining, prior to retrieval of a content file, a bandwidth of a network connection over which the content file will be retrieved];

a download manager executed by said processor for retrieving, and storing in the mass storage device, a portion of the content file, [the download manager determining a size of the portion to retrieve in response to the determination made by the bandwidth measurement module] (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval); **and**

a presentation manager executed by said processor for retrieving the portion of the content file from the mass storage device and displaying the portion with a media player application (Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber),

wherein the download manager retrieves a remainder of the content file in response to the presentation manager displaying the retrieved portion of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is

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played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **a bandwidth measurement module executed by said processor for dynamically determining, prior to retrieval of a content file, a bandwidth of a network connection over which the content file will be retrieved and the download manager determining a size of the portion to retrieve in response to the determination made by the bandwidth measurement module**

However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an

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obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another.

Examiner recites the same rationale to combine used in claim 1.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

Examiner recites the same rationale to combined used in claim 1.

30. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arsenault-Singal-Vega-Garcia and further in view of U.S. Pub. No. 2004/0128343 to Mayer (hereinafter "Mayer").

31. **As to Claim 14**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10**. Arsenault-Singal-Vega-Garcia does not explicitly disclose **wherein step (f) comprises retrieving, in response to step (e), the remainder of the content file from a peer-to-peer network**.

However, Mayer discloses this. Paragraph [0047] of Mayer discloses that in another preferred embodiment, program segments A are shared by end-users, interconnected by broadband, through peer-to-peer technology.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of claim 10 disclosed by Arsenault-Singal-Vega-Garcia, with using a peer-to-peer network disclosed by Mayer. One of ordinary skill in the art at the time the invention was made would have been motivated to combine in order to reduce the overhead of the provider and be able to more efficiently use their own bandwidth.

32. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arsenault-Singal-Vega-Garcia and further in view of US Pub. No. 2003/0037331 to Lee (hereinafter "Lee").

33. **As to Claim 15**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10**. Arsenault-Singal-Vega-Garcia does not explicitly disclose **wherein step (t) comprises retrieving, in response to step (e), the remainder of the content file from a multicast network**.

However, Lee discloses this. Paragraphs [0008]-[0009] of Lee disclose a VOD system where users may first receive a dynamically initiated front portion of a video and then be merged into a pre-scheduled multicast.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of claim 10 as disclosed by Arsenault-Singal-Vega-Garcia, with using multicast as disclosed by Lee. One of ordinary skill in the art would have been motivated to

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combine to use simple substitution of one known element for another. Lee discloses a similarly VOD system as Arsenault and as such it would be obvious to utilized techniques of one in the other.

Conclusion

34. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN S. MAI whose telephone number is (571)270-5001. The examiner can normally be reached on Monday through Friday 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571)272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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